RECOMMENDATIONS

Groundwater depths ranged from 3 to 6.5 feet below the ground surface at the boring locations. The 17 borings were drilled at the locations at various locations at the proposed Town Center. The boring number, depth to groundwater, and estimated seasonal high water table (SHWT) depth at each boring location is summarized in the table below.

Table: Summary of Infiltration Test Results

Boring	Depth to Groundwater (ft.)	Estimated Depth to SHWT (ft.)
B-1	4.0	4.0
B-2	6.0	5.0
B-3	6.5	6.0
B-4	6.5	6.0
B-5	3.0	3.0
B-6	6.5	4.0
B-7	4.0	4.0
B-8	4.0	4.0
B-9	4.0	4.0
B-10	5.0	5.0
B-11	5.5	5.0
B-12	5.0	5.0
B-13*	6.5	6.0
B-14*	6.5	6.0
B-15*	6.5	6.0
B-16*	6.5	6.0
B-17*	6.5	6.0

Note: *Restrictive soils were noted between 0 to 4 feet below the ground surface.

We note that redoximorphic features can indicate seasonal high groundwater, "perched water", or a restrictive soil layer. Redoximorphic features were noted at boring locations B-3, B-6, B-7, B-8, and B-13. The presence of restrictive soils at locations B-13 to B-17 may cause perched water conditions after precipitation events. Based on our observations of the subsurface conditions at the site and in consideration of groundwater level data from DGS Well ID Pe54-51, we estimate that seasonal high groundwater is similar to the conditions encountered during our exploration as noted in the Table. We note that seasonal high groundwater may vary across the site.

REMARKS

This report has been prepared solely and exclusively for Hillcrest Associates to provide preliminary soil and groundwater data for the proposed Bridgeville Town Center project in Bridgeville, Delaware. It has not been developed to meet the needs of others, and application of this report for other than its intended purpose could result in substantial difficulties. The Consulting Engineer cannot be held accountable for any problems which occur due to the application of this report to other than its intended purpose. This report in its entirety should be attached to the project specifications.

	HYNES HYNES &	LOG OF BORING B-1				
	ASSOCIATES					(Page 1 of 1)
1	Hillcrest Associates 1760 Flint Hill Road andenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: Drilled By: Drilling Method:	: April 8, 2021 : E. Cross : D. Csanda : Hand Auger : 6 feet			
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
0- - 1-	Brownish yellow, wet, fine to medium S trace clay (10 YR 6/6, Sandy loam)	AND, with some silt,		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface.
-					2	Groundwater was encountered at 4 feet during augering operations.
2-	Brownish yellow, wet, fine to medium S little silt, trace clay (10 YR 6/6, Sandy lo	AND, with some to pam)			3	
3-					4	
4-				SM	5	
5-					6	
6-	Boring terminated at 6 feet.					
7- -						
8						
9-						
10-						

	HYNES HYNES		LC	G OF	BOR	NG B-2
	ASSOCIATES					(Page 1 of 1)
	Hillcrest Associates 1760 Flint Hill Road Landenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: : Drilled By: : Drilling Method: :	April 8, 2021 E. Cross D. Csanda Hand Auger 6 feet			
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
0-	Brownish yellow, wet, fine to medium S trace clay (10 YR 6/6, Sandy loam)	AND, with some silt,			1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface.
2-				SM	2	Groundwater was encountered at 6 feet during augering operations. At completion, water was at 6 feet.
3-					3	
	Light yellowish brown, wet, fine to medi some silt, trace clay (10 YR 7/6, Sandy	um SAND, with loam)		SM	4	
4-	Brownish yellow, wet, fine to medium S trace clay (10 YR 6/6, Sandy loam)	AND, with some silt,			5	
5				SM	6	
6-	Boring terminated at 6 feet.		netek teletil			I
7-						
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9-						
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	HYNES HYNES &	LOG OF BORING B-3					
	ASSOCIATES					(Page 1 of 1)	
,,,,,	Hillcrest Associates 1760 Flint Hill Road Landenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: : Drilled By: : Drilling Method: :	April 8, 2021 E. Cross D. Csanda Hand Auger 7 feet				
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS	
0- - 1-	Brownish yellow, wet, fine to medium Strace clay (10 YR 6/6, Sandy loam)	AND, with some silt,			1	Scale 1" ~ 1.5 feet Approximately 24 inches of organic bearing soil was encountered at the ground	
_				014	2	surface. Groundwater was encountered at 6.5 feet during augering operations.	
-				2M	3		
3-					4		
4	Light yellowish brown, wet, fine to medi some to little silt (10 YR 6/8, Sandy loar	um SAND, with n)			5		
5-				SM	6		
6-	Light yellowish brown, saturated, fine to with some silt, trace clay (10 YR 6/8, Sa	medium SAND, andy loam, mottling)		SM	7		
7	Boring terminated at 7 feet.						
8-							
9							***************************************
5 6 7 8	Light yellowish brown, saturated, fine to with some silt, trace clay (10 YR 6/8, Sa				5	during augering operations.	

	HYNES HYNES	LOG OF BORING B-4				
	ASSOCIATES					(Page 1 of 1)
<u> </u>	Hillcrest Associates 1760 Flint Hill Road Landenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: : Drilled By: : Drilling Method: :	April 8, 2021 E. Cross D. Csanda Hand Auger 7 feet			
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
0-	Brownish yellow, wet, fine to medium Sa trace clay (10 YR 6/6, Sandy loam)	AND, with some silt,			1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground
2-				SM	2	surface. Groundwater was encountered at 6.5 feet during augering operations.
3-				 .	3	
_					4	
4-	Light yellowish brown, wet, fine to medit trace silt (10 YR 6/8, Sand)	um SAND, with	111111111111111111111111111111111111111	SP	5	
-	Light brownish yellow, wet, fine to media some silt, trace clay (10 YR 6/6, Sandy	um SAND, with loam)			6	
6-				SM	7	
7-	Boring terminated at 7 feet.				<u>.l</u> 11	
8-						
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10-						

	HYNES HYNES &	LOG OF BORING B-5				
	ASSOCIATES					(Page 1 of 1)
L	Hillcrest Associates 1760 Flint Hill Road Landenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: : Drilled By: : Drilling Method: :	April 8, 2021 E. Cross D. Csanda Hand Auger 5 feet			
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
0-	Light yellowish brown, wet, fine to medi silt, trace clay (10 YR 6/6, Sandy loam)	um SAND, with little			1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground
2-				SM	2	Surface. Groundwater was encountered at 3 feet during augering operations.
4					3	
3	Pale brown, wet, fine to medium SAND clay (10 YR 6/3, Sandy loam)	, with some silt, trace			4	
4-				SM	5	
5-	Boring terminated at 5 feet.	· · · · · · · · · · · · · · · · · · ·			<u>. J</u>	
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	HYNES HYNES &	LOG OF BORING B-6				
	ASSOCIATES					(Page 1 of 1)
	Hillcrest Associates 1760 Flint Hill Road -andenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: Drilled By: Drilling Method:	: April 8, 2021 : E. Cross : D. Csanda : Hand Auger : 7 feet			
	•					
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
0-	Light brownish gray, wet, fine to mediur silt, trace clay (10 YR 6/2, Sandy loam)	n SAND, with some			1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground
_				SM	2	surface. Groundwater was encountered at 6.5 feet during augering operations.
2-					3	
3-	Light gray wet, fine to medium SAND, v clay (10 YR 6/2, Sandy loam, mottling)	vith some silt, trace		SM	4	
4	Light gray-brown, wet, fine to medium S little clay (10 YR 6/2, Sandy loam)	SAND, with some silt,			5	
5-				SM	6	
6					7	
7-	Boring terminated at 7 feet.	· · · · · · · · · · · · · · · · · · ·	<u> </u>		I I	
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	HYNES	HYNES &	LOG OF BORING B-7				
	A STATE OF THE STA	ASSOCIATES					(Page 1 of 1)
	1760 F Landenberg, Bridgevil	st Associates Flint Hill Road Pennsylvania 19350 Ile Town Center 5.: JDH-10/21/195	Logged By: Drilled By: Drilling Method:	: April 8, 2021 : E. Cross : D. Csanda : Hand Auger : 6 feet			
Depth in Feet		DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
0-	Light yellow some silt, lit	rish brown, wet, fine to medi ttle to trace clay (10 YR 6/4,	um SAND, with Sandy loam)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground
2-						2	surface. Groundwater was encountered at 4 feet during augering operations.
3-	Light yellow silt, trace cla	ish brown, wet, fine to medi ay (10 YR 6/4, Loamy sand)	um SAND, with little		014	3	
-					SM	4	
4-	Light yellowi SAND, with	ish brown, wet to saturated, little silt (10 YR 6/4, Sandy	fine to medium loam, mottled)			5	
5-					SM	6	
6-	Boring termi	inated at 6 feet.				<u> </u>	
_							
7-							
8							
9-							
10-							

	HYNES HYNES &	LOG OF BORING B-8				
	ASSOCIATES					(Page 1 of 1)
	Hillcrest Associates 1760 Flint Hill Road Landenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: : Drilled By: : Drilling Method: :	April 8, 2021 E. Cross D. Csanda Hand Auger 6 feet		***	
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
0-	Light yellowish brown, wet, fine to medi some silt, little clay (10 YR 6/4, Sandy l	um SAND, with oam)			1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface.
2				SM	2	Groundwater was encountered at 4 feet during augering operations.
2-					3	
3-	Light yellowish brown, wet, fine to medi silt, trace clay (10 YR 6/4, Loamy sand)	um SAND, with little		SM	4	
-				J	5	
5-	Light yellowish brown, saturated, fine to with little silt, trace clay (10 YR 6/4, San	medium SAND, idy loam, mottled)		SM	6	
6-	Boring terminated at 6 feet.				<u> </u>	
7-						
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	HYNES HYNES	LOG OF BORING B-9				
	ASSOCIATES		_			(Page 1 of 1)
-	Hillcrest Associates 1760 Flint Hill Road Landenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: Drilled By: Drilling Method:	: April 8, 2021 : E. Cross : D. Csanda : Hand Auger : 6 feet			
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
-	Pale brown, wet, fine to medium SAND clay (10 YR 6/3, Sandy loam)	, with some silt, little		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground
2-				G.I	2	surface. Groundwater was encountered at 4 feet during augering operations.
	Yellowish brown, wet to saturated, fine with some silt, trace clay (10 YR 6/6, Sa	to medium SAND, andy loam)			3	
3-					4	
4-				SM	5	
5-					6	
6-	Boring terminated at 6 feet.				<u> </u>	
7-						
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	HYNES HYNES	LOG OF BORING B-10				
	ASSOCIATES					(Page 1 of 1)
	Hillcrest Associates 1760 Flint Hill Road Landenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: : Drilled By: : Drilling Method: :	April 8, 2021 E. Cross D. Csanda Hand Auger 6 feet			
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
1-	Light brown, wet, fine to medium SAND clay (10 YR 5/3, Sandy Ioam)	, with some silt, little		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground
2-					2	Surface. Groundwater was encountered at 5 feet during augering operations.
-	Light to dark brown, wet to saturated, fi with little silt, trace clay (10 YR 6/6, Loa	ne to medium SAND, imy sand)			3	
3-					4	
4-				SM	5	
5-					6	
6	Boring terminated at 6 feet.					
7-						
8-						
9-						
10-						

	HYNES HYNES &	LOG OF BORING B-11				
	ASSOCIATES					(Page 1 of 1)
	Hillcrest Associates 1760 Flint Hill Road Landenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: : Drilled By: : Drilling Method: :	April 8, 2021 E. Cross D. Csanda Hand Auger 7 feet			
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
-	Yellowish brown, wet, fine to medium S trace to little clay (10 YR 6/6, Sandy loa	AND, with some silt, am)		SM	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground
2-					2	Groundwater was encountered at 5.5 feet during augering operations.
_	Brown to light brown, wet to saturated, SAND, with little silt, trace clay (10 YR	fine to medium 5/3, Loamy sand)			3	
3-					4	
4				SM	5	
5-					6	
6-					7	
7-	Boring terminated at 7 feet.					
8-						
9-						
10-						

	HYNES HYNES &	LOG OF BORING B-12					
	ASSOCIATES					(Page 1 of 1)	
Hillcrest Associates 1760 Flint Hill Road Landenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195		Logged By: Drilled By: Drilling Method:	: April 8, 2021 : E. Cross : D. Csanda : Hand Auger : 7 feet				
at .							
Depth in Feet	DESCRIPTIO	N	GRAPHIC	SOSO	Sample	REMARKS	
0-	Light brown to yellowish brown, wet, find with some silt, little clay (10 YR 6/6, Sai	e to medium SAND, ndy loam)			1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing	
1				SM	2	soil was encountered at the ground surface. Groundwater was encountered at 5 feet during augering operations.	
2	Yellowish brown, wet to saturated, fine with little silt, trace clay (10 YR 6/6, Loa	to medium SAND, my sand)			3		
3-					4		
4				SM	5		
5-					6		
6-					7	·	
7	Boring terminated at 7 feet.						
8-							
9-							
10-							

	HYNES HYNES &	LOG OF BORING B-13				
	ASSOCIATES					(Page 1 of 1)
1	Hillcrest Associates 1760 Flint Hill Road Landenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: : Drilled By: : Drilling Method: :	April 8, 2021 E. Cross D. Csanda Hand Auger 7 feet			
Depth in Feet		, ,)HiC	6	ē.	DEMARKS
	DESCRIPTION	·V	GRAPHIC	nscs	Sample	REMARKS
0-	Light brown to yellowish brown, wet, fin- with little to trace clay, little to trace silt of clay loam)	e to medium SAND, (10 YR 6/6, Sandy		SM-SC	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground
- 2-					2	Groundwater was encountered at 6.5 feet during augering operations.
	Light brown-yellowish brown, wet, fine to with little to trace clay, little to trace silt (loam, mottling at 3 to 4 feet)	o medium SAND, (10 YR 6/6, Sandy			3	Sample No. 4 From 3 to 4 feet
3-				SC-SM	4	Sieve Analysis Sieve Passing Size % 3/8" 100 No. 4 99.5
4					5	No. 10 96.2 No. 20 89.8 No. 40 65.3 No. 60 43.2 No. 100 27.2 No. 200 16.1
5— - 6—	Light yellowish brown, wet, fine to medit to trace silt (10 YR 6/6, Loamy sand)	um SAND, with little		SM	6	Natural Moisture = 18.8%
<u>-</u>				SIVI	7	
7-	Boring terminated at 7 feet.		manatatathatil			
8-						
9						

10-

HYNES HYNES		LOG OF BORING B-14				
ASSOCIATES		(Page 1 of 1)				
Hillcrest Associates 1760 Flint Hill Road Landenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195		Logged By: : Drilled By: : Drilling Method: :	April 8, 2021 E. Cross D. Csanda Hand Auger 7 feet			
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
0-	Light brown to brown, wet, fine to mediclay, trace to little silt (10 YR 5/3, Sand	um SAND, with little y clay)		sc	1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface.
2-					2	Groundwater was encountered at 6.5 feet during augering operations. Laboratory Test Results
_	Light brown, wet, fine to medium SAND to little silt (10 YR 7/4, Sandy clay)	D, with little clay, trace	sc	3	Sample No. 5 From 4 to 5 feet Sieve Analysis	
3-	Brown-dark yellowish brown, wet, fine to with little to trace silt, little to trace clay sand)	o medium SAND, (10 YR 5/6, Loamy		SM-SC	4	Sieve Passing Size % No. 4 100 No. 10 96.7 No. 20 87.2
_					5	No. 40 60.5 No. 60 40.1 No. 100 26.7 No. 200 18.2
5-	Light yellowish brown, wet, fine to medi trace to little silt, trace clay (10 YR 6/4,	um SAND, with Loamy sand)		011	6	Natural Moisture = 16.1%
6-				SM	7	
7-	Boring terminated at 7 feet.		1024-0122-0-012-0-0		1	
8- - 9-						
10-						

HYNES HYNES &		LOG OF BORING B-15				
	ASSOCIATES	(Page 1 of 1)				
L	Hillcrest Associates 1760 Flint Hill Road andenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: : Drilled By: : Drilling Method: :	April 8, 2021 E. Cross D. Csanda Hand Auger 7 feet			
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
1-	Light brown to brown, wet, fine to medic clay, trace silt (10 YR 5/3, Sandy clay)	um SAND, with little			2	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 6.5 feet during augering operations.
2- - 3-				SC	3	Laboratory Test Results Sample No. 5 From 4 to 5 feet Sieve Analysis Sieve Passing Size %
4-	Brownish yellow, wet, fine to medium Sa trace gravel (10 YR 6/6, Sand)	AND, with trace silt,		SP	5	3/8" 100 No. 4 96.1 No. 10 88.7 No. 20 79.9 No. 40 50.9 No. 60 24.5 No. 100 12.3 No. 200 4.6
5— - 6—	Yellowish brown, wet, fine to medium Strace clay (10 YR 6/4, Sandy loam)	AND, with some silt,		SM	6	Natural Moisture = 19.9%
7-	Boring terminated at 7 feet.				7	
8-						
9-						

HYNES HYNES LOG OF BORING B-16 **ASSOCIATES** (Page 1 of 1) Hillcrest Associates Date Completed: : April 8, 2021 1760 Flint Hill Road Logged By: : E. Cross Landenberg, Pennsylvania 19350 Drilled By: : D. Csanda Bridgeville Town Center Drilling Method: : Hand Auger Total Depth: Project No.: JDH-10/21/195 : 7 feet Depth in Feet **SRAPHIC** Sample **USCS** DESCRIPTION REMARKS Light brown, wet, fine to medium SAND, with little silt, trace clay, trace gravel (10 YR 5/3, Loamy sand) Scale 1" ~ 1.5 feet 1 Approximately 12 inches of organic bearing soil was encountered at the ground 1 surface. SM Groundwater was encountered at 6.5 feet 2 during augering operations. 2 Laboratory Test Results Sample No. 3 3 From 2 to 3 feet Sieve Analysis 3 Light brown, wet, silty CLAY and fine to medium SAND (10 YR 5/3, Clay loam) Sieve Passing Size 4 3/8" 100 No. 4 93.3 CL No. 10 74.1 4 No. 20 57.8 No. 40 43.2 5 No. 60 29,0 No. 100 19.7 No. 200 12.1 5 Light brown, wet, fine to medium SAND, with little to some Natural Moisture = 14.8% silt, trace clay (10 YR 5/3, Sandy loam) 6 Sample No. 4 From 3 to 4 feet 6. SM Sieve Analysis 7 Sieve Passing Size % 100 1/2" Boring terminated at 7 feet. 3/8" 97.8 No. 4 89.5 No. 10 85,5 No. 20 82,7 No. 40 78.2 8 No. 60 71.5 No. 100 65.8

9

10

No. 200

60.4

Natural Moisture = 22.8%

HYNES HYNES &		LOG OF BORING B-17				
	ASSOCIATES					(Page 1 of 1)
L	Hillcrest Associates 1760 Flint Hill Road .andenberg, Pennsylvania 19350 Bridgeville Town Center Project No.: JDH-10/21/195	Logged By: : Drilled By: : Drilling Method: :	April 8, 2021 E. Cross D. Csanda Hand Auger 7 feet			
Depth in Feet	DESCRIPTIO	N	GRAPHIC	nscs	Sample	REMARKS
0 - 1-	Light brown, wet, fine to medium SAND clay (10 YR 5/3, Sandy loam)	, with some silt, little			1	Scale 1" ~ 1.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface.
2				SM	2	Groundwater was encountered at 6.5 feet during augering operations.
					3	
3	Yellowish brown, wet, silty CLAY, trace sand (10 YR 6/6, Silty clay)	fine to medium		CL	4	
4	Light brown, wet, fine to medium SAND trace clay (10 YR 5/3, Sandy loam)	, with some silt,			5	
5 -				SM	6	
6-					7	
7-	Boring terminated at 7 feet.					
8-						
9						
10-						